ODYSSEA

Creating products and knowledge for the Mediterranean

bluelobster
www.bluelobster.co.uk

Marinomica

Simon Keeble

Simon Keeble - Blue Lobster IT Limited

simon@bluelobster.co.uk

Marinomica

~~The Mediterranean's~~ ~~Europe's~~ Digital Twin

Forecasting and simulations to enable decision making and expand knowledge concerned with the production, consumption, and transfer of wealth in the marine environment.

Defining Marinomics

ODYSSEA

marinomics

/məˈriːn'nɒmɪks/

1.   The science of decision making in the marine environment.

2.   The branch of knowledge concerned with the production, consumption, and transfer of wealth in the marine environment.

By defining a new field appropriately, this gives us a superb opportunity to talk about the field, what it includes (data science, economics, intelligent product design etc) and how the platform fills this space.

We encourage the community to continue to develop the definition of this field (Wikipedia page?) and contribute to it.

We have therefore branded the application as *Marinomica*

Suffix. -ica. a collection of things that relate to a specific place, person, theme, etc.

Creating products and knowledge for the coastal and offshore seas

Marinomica transforms knowledge into valuable information that can be used to increase revenues, attract investment and manage ecological challenges.

Get Started
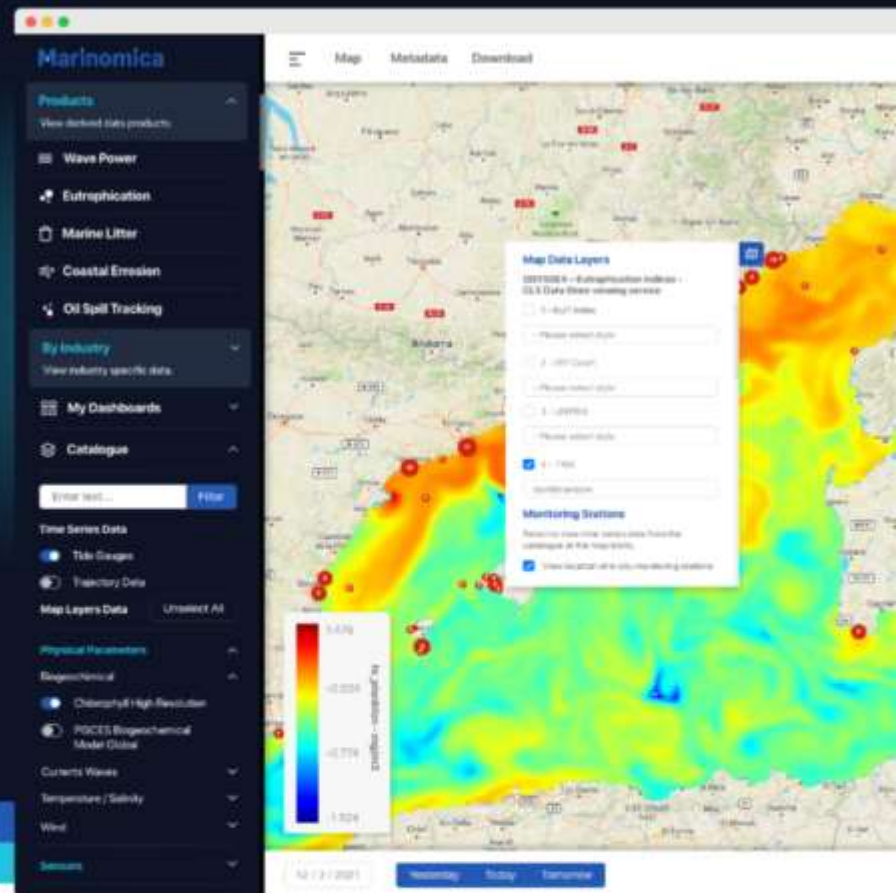
What is Marinomica?

The platform provides state of the art on-demand data services and forecasts to a wide range of users managing and mitigating challenges arising from changes in the water. Marinomica has brought data acquisition, usage of AI, modern modelling capabilities and visualisation to a next level.

For all interested parties in accessing knowledge concerned with the production, consumption, and transfer of wealth in the marine environment, the Marinomica Platform will provide a single portal by applying advanced

Jellyfish Swarm Forecast

Marinomica services include early warnings of jellyfish blooms and potential stranding locations. Historical data, real-time and forecasting data are presented in maps for each pixel point of coastline, near- and offshore areas.

Ocean Energy Potential

Wind and wave energy potential mapping and forecasts; forces exerted on piles and platforms; extreme events analysis; potential for H2 production from H2S.

Maritime Safety

Vessel routes optimisation; dispersion of both accidental and non-accidental oil spill releases; dispersion of accidental litter release. Definition of areas in which ballast water exchange and/or open loop scrubber effluent discharge is allowed and defining "same location" as defined by the BWMC.

Aquaculture & Algael

Analysis on probability of occurrence of storm events, extreme waves and surges; Recommendations on cage siting, configuration and anchoring. Analysis on probability of occurrence of eutrophication incidents; early-warnings on algal blooms and toxic blooms.

Fisheries Exploitation

Marine safety and security of fishers; dynamic estimation of the probability of occurrence of certain species; stock assessments and management recommendations; probability of occurrence of invasive species.

Plastic Pollution Monitoring

Potential to identify sources of rubbish and locate and map polluted stretches of the sea and coastline. Will provide permanent and real-time access to information and date from noval plastic monitoring sensors and (in the future) reported sightings and incidents.

Leisure & Tourism

Historic and forecast shoreline erosion/deposition changes; Coastal Vulnerability Indices; metocean conditions monitoring and forecasting for safe leisure activities; potential jellyfish outbreak forecasts and tracking.
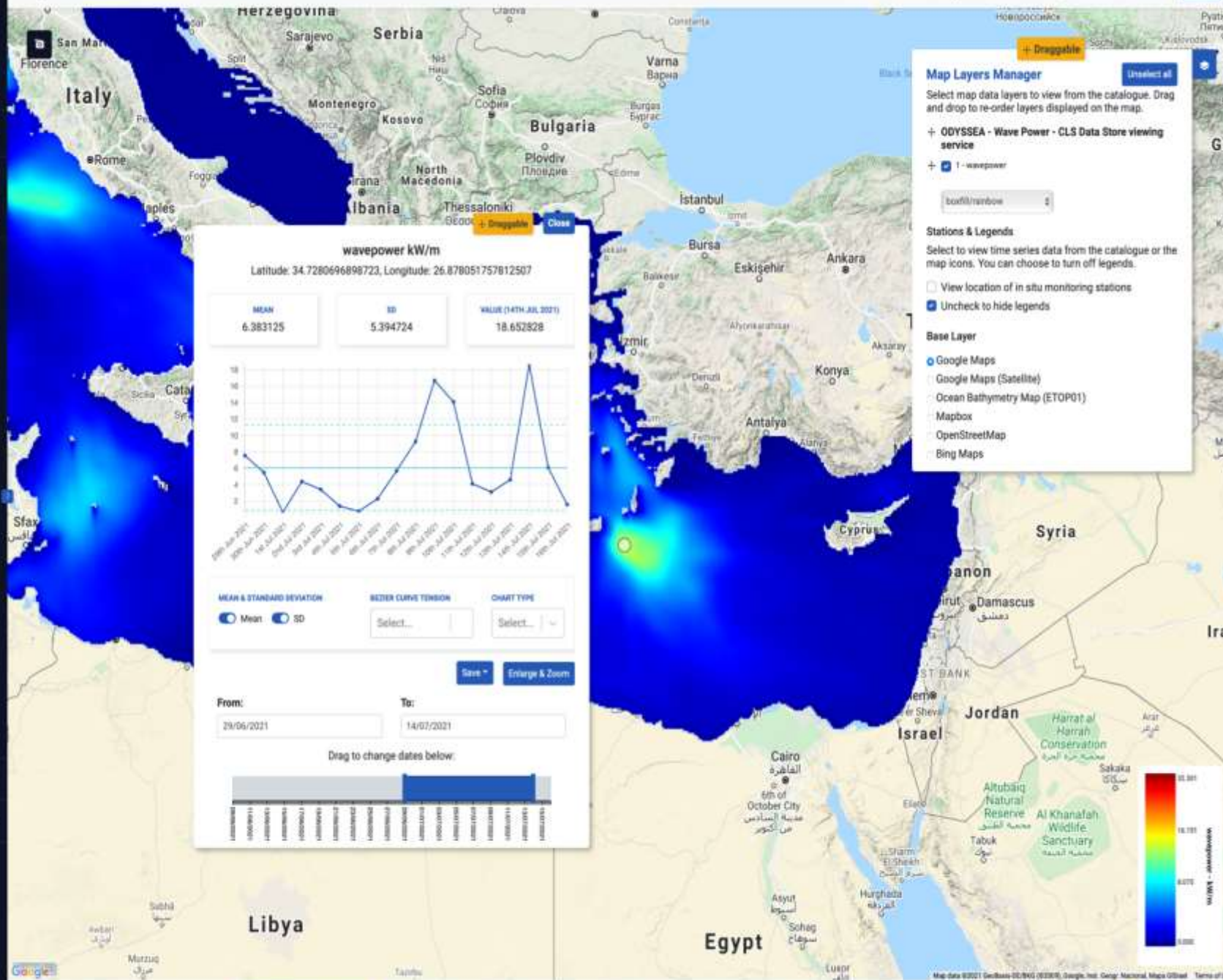
Coastal Erosion

Identifies coastal erosion 'hotspots' in specific areas along the shoreline and obtain forecasts about potential coastal retreat and loss of land. Results are presented in maps. Historical data, real-time and forecasting data for each pixel point of coastline, near- and offshore areas.

Marinomica

Products

- ⏱ Time Series Data
- ⊗ Catalogue

Unselect Layers

Parameters

Filter parameters... 🔍

- Chlorophyll
- Currents
- Nutrients
- Oxygen
- Phytoplankton
- Salinity
- Sea Level
- Temperature
- Wave
- Weather

Static Data
Observatories
Derived products

- ODYSSEA – Eutrophication indices
- ODYSSEA – Wave Power

Map Layers Manager

Unselect all

Select map data layers to view from the catalogue. Drag and drop to re-order layers displayed on the map.

+ **ODYSSEA - Wave Power - CLS Data Store viewing service**

+ ☑ 1 - wavepower
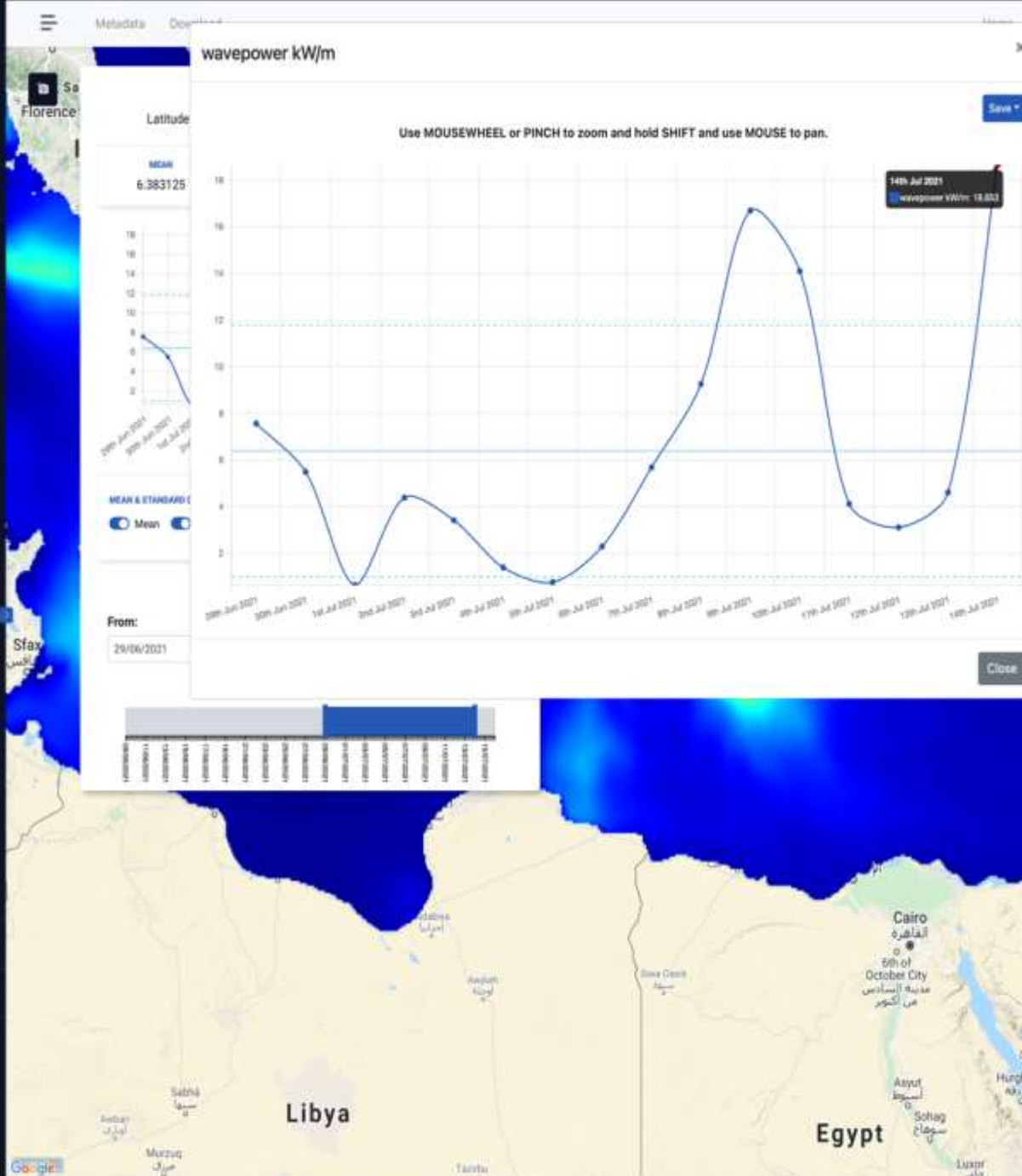
boxfill/rainbow ▼

Stations & Legends

Select to view time series data from the catalogue or the map icons. You can choose to turn off legends.

☐ View location of in situ monitoring stations
☑ Uncheck to hide legends

Base Layer

- ⦿ Google Maps
- ○ Google Maps (Satellite)
- ○ Ocean Bathymetry Map (ETOP01)
- ○ Mapbox
- ○ OpenStreetMap
- ○ Bing Maps

+ Draggable

---

wavepower kW/m

Latitude: 34.7280696898723, Longitude: 26.878051757812507

MEAN	SD	VALUE (14TH JUL 2021)
6.383125	5.394724	18.652828

MEAN & STANDARD DEVIATION   **BEZIER CURVE TENSION**   **CHART TYPE**

◉ Mean   ◉ SD   Select...   Select...

Save ▼   Enlarge & Zoom

From: 29/06/2021   **To:** 14/07/2021

Drag to change dates below:

+ Draggable   Close

14/07/2021   00:00:00.000Z   Yesterday   Today   Tomorrow

Service Status   Privacy Policy   🍪 Cookie Settings

Marinomica

Metadata Download Home About App Services Blog Docs Contact Sign in

Products

⏱ Time Series Data

⬚ Catalogue

Unselect Layers

Parameters

Filter parameters... 🔍

Chlorophyll
Currents
Nutrients
Oxygen
Phytoplankton
Salinity
Sea Level
Temperature
Wave
Weather

Static Data
Observatories
Derived products

⚪ ODYSSEA – Eutrophication indices
⚪ ODYSSEA – Wave Power

wavepower kW/m

Use MOUSEWHEEL or PINCH to zoom and hold SHIFT and use MOUSE to pan.

Save ▾

Latitude

MEAN
6.383125

MEAN & STANDARD
⚪ Mean ⚪

From:
29/06/2021

14th Jul 2021
wavepower kW/m: 19.803

Close

Map Layers Manager
Unselect all

Select map data layers to view from the catalogue. Drag and drop to re-order layers displayed on the map.

+ **ODYSSEA - Wave Power - CLS Data Store viewing service**

+ ☑ 1 - wavepower

boxfill/rainbow ▾

Stations & Legends

Select to view time series data from the catalogue or the map icons. You can choose to turn off legends.

☐ View location of in situ monitoring stations
☑ Uncheck to hide legends

Base Layer

◉ Google Maps
○ Google Maps (Satellite)
○ Ocean Bathymetry Map (ETOP01)
○ Mapbox
○ OpenStreetMap
○ Bing Maps

+ Draggable

14/07/2021 00:00:00.000Z Yesterday Today Tomorrow

Service Status Privacy Policy Cookie Settings

Home   About   App   Services   Blog   Docs   Contact   simon@bluelobster.co.uk ▾

Products ▾

⊞ My Dashboards ▾

+ Waves and TRIX

+ JG Tester

+ Eutrophication

+ New Dashboard

⏱ Time Series Data ›

⊗ Catalogue ▾

Unselect Layers

Parameters ›

Static Data ›

Observatories ›

Derived products ▾

◉ ODYSSEA – Eutrophication indices
⬇ ℕ

◯ ODYSSEA - Wave Power
⬇ ℕ

Back To Map

Eutrophication

Dashboard Actions ▾

14-07-2021 7:31:24 TRIX

TRIX

Latitude: 44.80717308106486, Longitude: 12.549133300781243

MEAN	SD	VALUE (14TH JUL 2021)
7.601946	0.313600	7.702214

14-07-2021 7:28:58 Map

2021-07-13T23:00:00.000Z - Expand To Interact

Eutrophication

The standard Lorem Ipsum passage, used since the 1500s

"Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum."
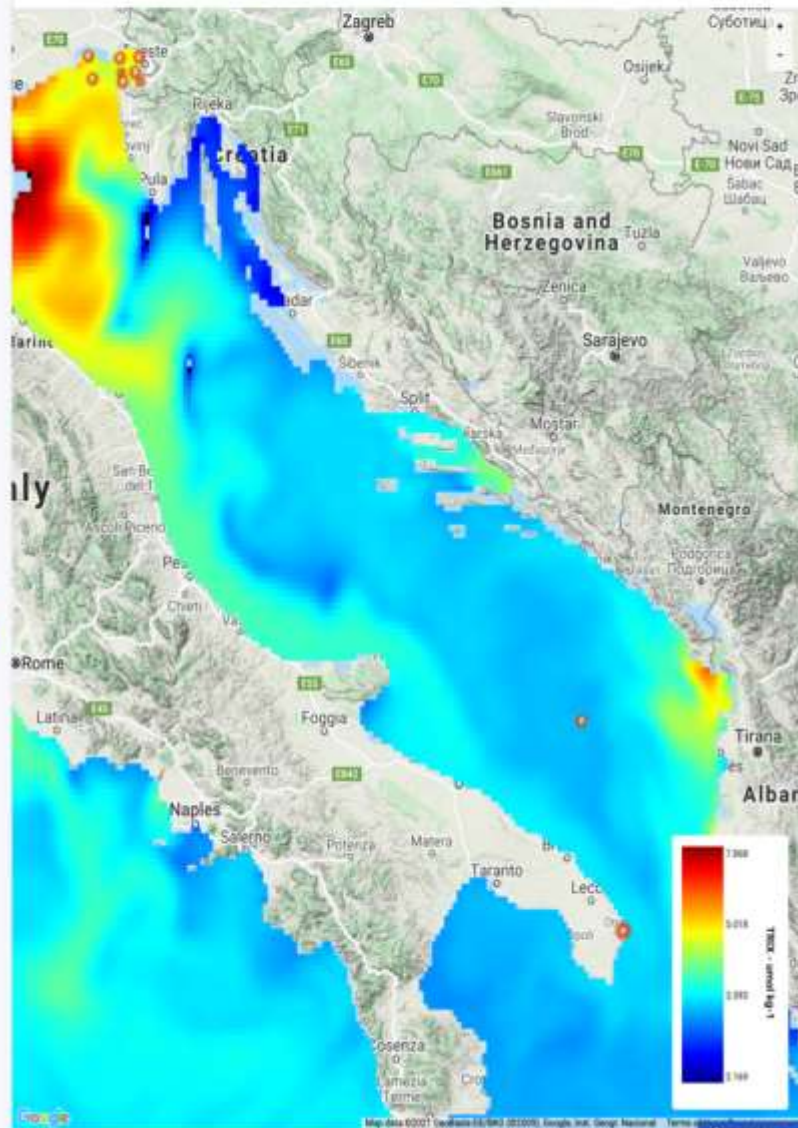
Section 1.10.32 of "de Finibus Bonorum et Malorum", written by Cicero in 45 BC

"Sed ut perspiciatis unde omnis iste natus error sit voluptatem accusantium doloremque laudantium, totam rem aperiam, eaque ipsa quae ab illo inventore veritatis et quasi architecto beatae vitae dicta sunt explicabo. Nemo enim ipsam voluptatem quia voluptas sit aspernatur aut odit aut fugit, sed quia consequuntur magni dolores eos qui ratione voluptatem sequi nesciunt. Neque porro quisquam est, qui dolorem ipsum quia dolor sit amet, consectetur, adipisci velit, sed quia non numquam eius modi tempora incidunt ut labore et dolore magnam aliquam quaerat voluptatem. Ut enim ad minima veniam, quis nostrum exercitationem ullam corporis suscipit laboriosam, nisi ut aliquid ex ea commodi consequatur? Quis autem vel eum iure reprehenderit qui in ea voluptate velit esse quam nihil molestiae consequatur, vel illum qui dolorem eum fugiat quo voluptas nulla pariatur?"
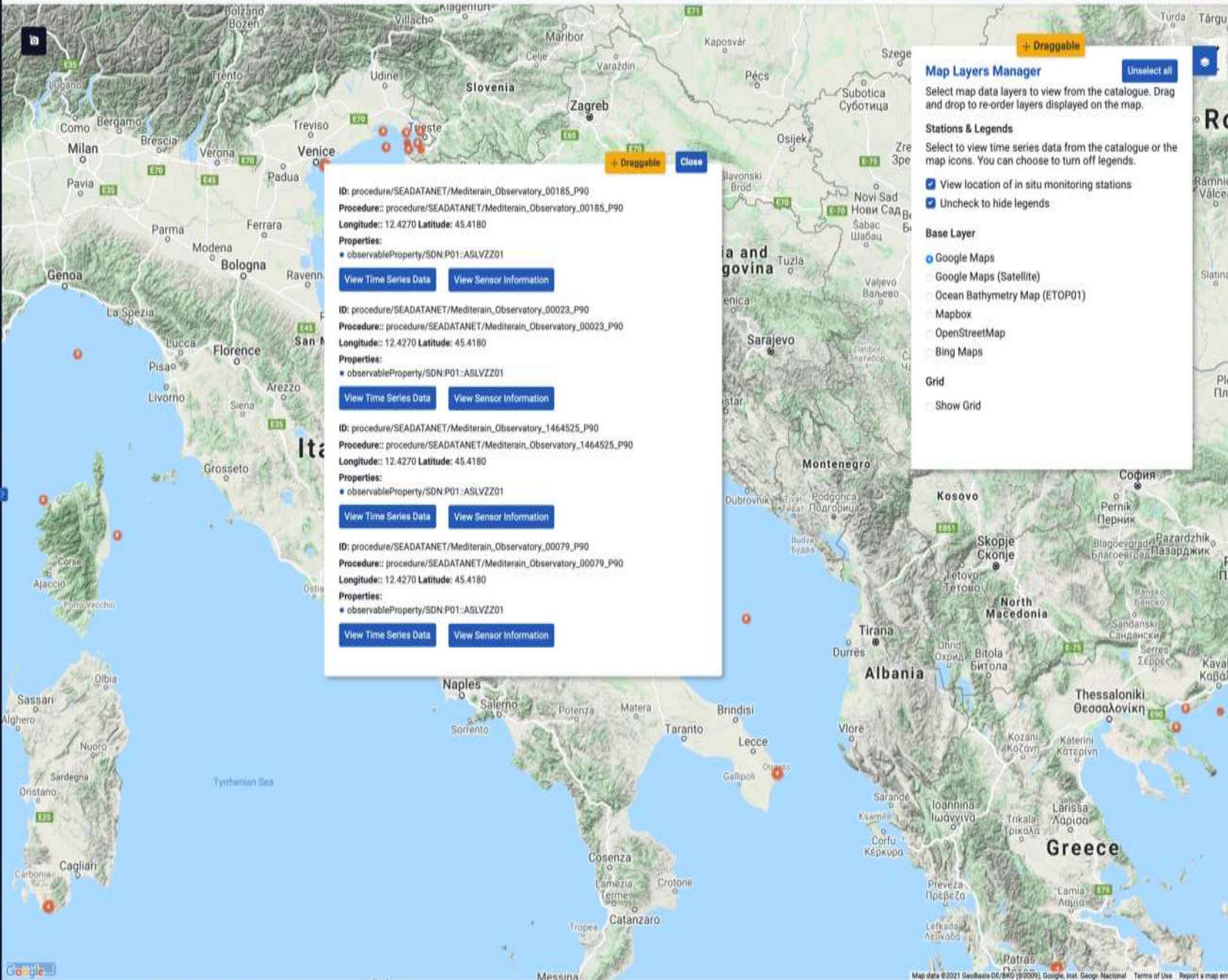
1914 translation by H. Rackham

Marinomica

Products ⌄

● Eutrophication

🕐 Time Series Data ⌄

● Tide gauges

▤ Catalogue ›

Home About App Services Blog Docs Contact **Sign In**

📷

+ Draggable   **Close**

ID: procedure/SEADATANET/Mediterain_Observatory_00185_P90
Procedure:: procedure/SEADATANET/Mediterain_Observatory_00185_P90
Longitude:: 12.4270 **Latitude:** 45.4180
Properties:
● observableProperty/SDN:P01::ASLVZZ01

View Time Series Data   **View Sensor Information**

ID: procedure/SEADATANET/Mediterain_Observatory_00023_P90
Procedure:: procedure/SEADATANET/Mediterain_Observatory_00023_P90
Longitude:: 12.4270 **Latitude:** 45.4180
Properties:
● observableProperty/SDN:P01::ASLVZZ01

View Time Series Data   **View Sensor Information**

ID: procedure/SEADATANET/Mediterain_Observatory_1464525_P90
Procedure:: procedure/SEADATANET/Mediterain_Observatory_1464525_P90
Longitude:: 12.4270 **Latitude:** 45.4180
Properties:
● observableProperty/SDN:P01::ASLVZZ01

View Time Series Data   **View Sensor Information**

ID: procedure/SEADATANET/Mediterain_Observatory_00079_P90
Procedure:: procedure/SEADATANET/Mediterain_Observatory_00079_P90
Longitude:: 12.4270 **Latitude:** 45.4180
Properties:
● observableProperty/SDN:P01::ASLVZZ01

View Time Series Data   **View Sensor Information**

+ Draggable

Map Layers Manager   **Unselect all**

Select map data layers to view from the catalogue. Drag and drop to re-order layers displayed on the map.

Stations & Legends

Select to view time series data from the catalogue or the map icons. You can choose to turn off legends.

☑ View location of in situ monitoring stations
☑ Uncheck to hide legends

Base Layer

◉ Google Maps
○ Google Maps (Satellite)
○ Ocean Bathymetry Map (ETOP01)
○ Mapbox
○ OpenStreetMap
○ Bing Maps

Grid

☐ Show Grid

14/07/2021   Yesterday Today Tomorrow

Service Status   Privacy Policy   ● Cookie Settings

Marinomica

Products ⌄

💧 Eutrophication

⏱ Time Series Data ⌄

◐ Tide gauges

☰ Catalogue ›

+ Draggable   **Close**

ID: procedure/SEADATANET/Mediterain_Observatory_00185_P90

Procedure:: procedure/SEADATANET/Mediterain_Observatory_00185_P90

Longitude:: 12.4270 **Latitude:** 45.4180

Properties:
• observableProperty/SDN:P01::ASLVZZ01

View Time Series Data   **View Sensor Information**

ID: procedure/SEADATANET/Mediterain_Observatory_00023_P90

Procedure:: procedure/SEADATANET/Mediterain_Observatory_00023_P90

Longitude:: 12.4270 **Latitude:** 45.4180

Properties:

Map Layers Manager   Unselect all

Select map data layers to view from the catalogue. Drag and drop to re-order layers displayed on the map.

Stations & Legends

Select to view time series data from the catalogue or the map icons. You can choose to turn off legends.

☑ View location of in situ monitoring stations
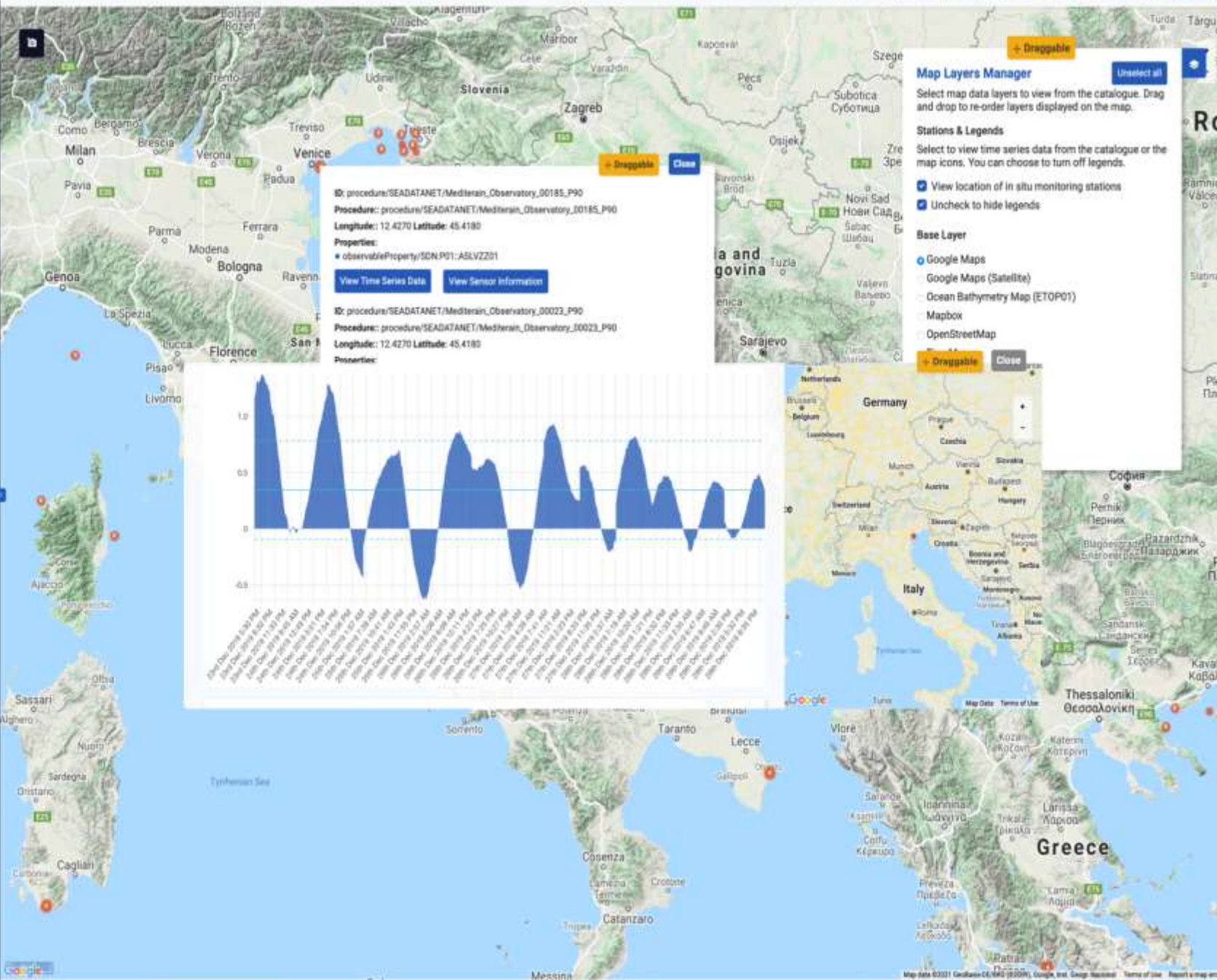
☑ Uncheck to hide legends

Base Layer

◉ Google Maps

○ Google Maps (Satellite)

○ Ocean Bathymetry Map (ETOP01)

○ Mapbox

○ OpenStreetMap

+ Draggable   **Close**

14/07/2021   **Yesterday**   **Today**   **Tomorrow**

Service Status   Privacy Policy   ◉ Cookie Settings

Products   ⌄

● Eutrophication

⊙ Time Series Data   ⌄

◯ Tide gauges

❀ Catalogue   ⌄

Unselect Layers

Parameters   ›

Static Data   ›

Observatories   ⌄

ODYSSEA Morocco   ⌄

◉ ODYSSEA MOROCCO Flow
⬇ ⋔

◯ ODYSSEA MOROCCO
Waves
⬇ ⋔

◯ ODYSSEA MOROCCO
Weather
⬇ ⋔

◉ ODYSSEA MOROCCO
Water properties
⬇ ⋔

ODYSSEA Israel   ›

ODYSSEA Algeria   ›

ODYSSEA Turkey   ›

Derived products   ⌄

◉ ODYSSEA – Eutrophication
indices
⬇ ⋔

◯ ODYSSEA – Wave Power

+ Draggable   **Close**
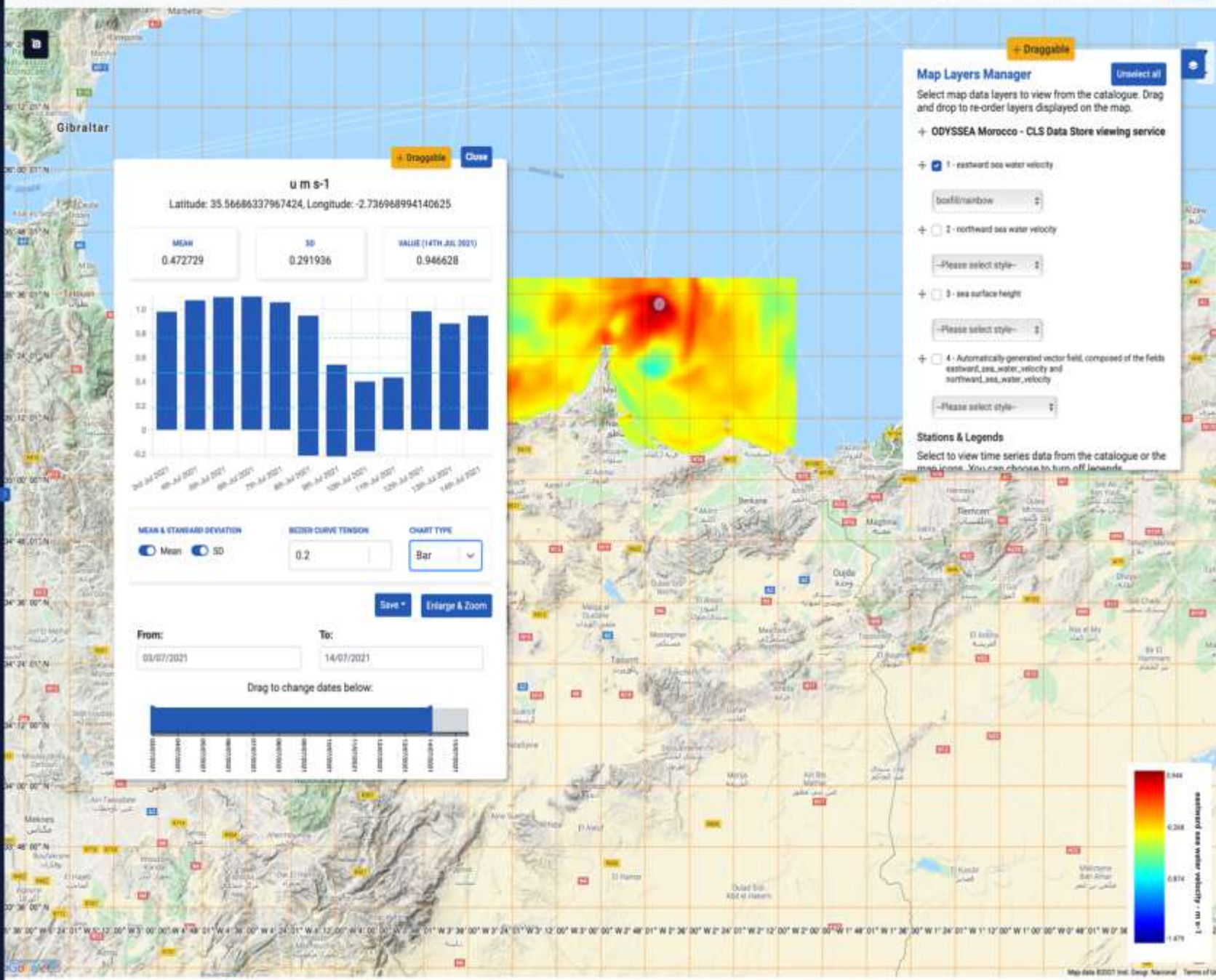
u m s-1

Latitude: 35.56686337967424, Longitude: -2.736968994140625

MEAN	SD	VALUE (14TH JUL 2021)
0.472729	0.291936	0.946628

MEAN & STANDARD DEVIATION   **BEZIER CURVE TENSION**   **CHART TYPE**

◉ Mean   ◉ SD   0.2   Bar ⌄

Save ▾   Enlarge & Zoom

From: **To:**

03/07/2021   14/07/2021

Drag to change dates below:

+ Draggable

Map Layers Manager   Unselect all

Select map data layers to view from the catalogue. Drag
and drop to re-order layers displayed on the map.

+ **ODYSSEA Morocco - CLS Data Store viewing service**

⊹ ☑ 1 - eastward sea water velocity

boxfill/rainbow   ⇳

⊹ ☐ 2 - northward sea water velocity

--Please select style--   ⇳

⊹ ☐ 3 - sea surface height

--Please select style--   ⇳

⊹ ☐ 4 - Automatically generated vector field, composed of the fields
eastward_sea_water_velocity and
northward_sea_water_velocity

--Please select style--   ⇳

Stations & Legends

Select to view time series data from the catalogue or the
map icons. You can choose to turn off legends.

Marinomica

Products ▾

- Eutrophication
- Time Series Data ▾
- Tide gauges
- Catalogue ▾

Parameters ›

Static Data ›

Observatories ›

ODYSSEA Morocco ▾

- ODYSSEA MOROCCO Flow
- ODYSSEA MOROCCO Waves
- ODYSSEA MOROCCO Weather
- ODYSSEA MOROCCO Water properties

ODYSSEA Israel ›

ODYSSEA Algeria ›

ODYSSEA Turkey ›

Derived products ▾

- ODYSSEA – Eutrophication indices
- ODYSSEA – Wave Power

ODYSSEA Morocco

CLS Data Store download serviceDownload with temporal and geospatial extraction (OGC WCS)

Download

CLOSE X

Period

| 13-07-2021 12:00:00 | 📅 | to | 14-07-2021 00:00:00 |

Depth

| 0.48 ▼ | 0.479999 | to | 0.48 ▼ | 0.479999 |

Region

| Minimum longitude: | -4.962222384723 | Maximum longitude: | 0.7506682402763 |
| Minimum latitude: | 34.118179980834' | Maximum latitude: | 36.590840764207 |

Clear Map

Variable

Download	Name	Description	Standard Name	Long Name	Units

Map Layers Manager

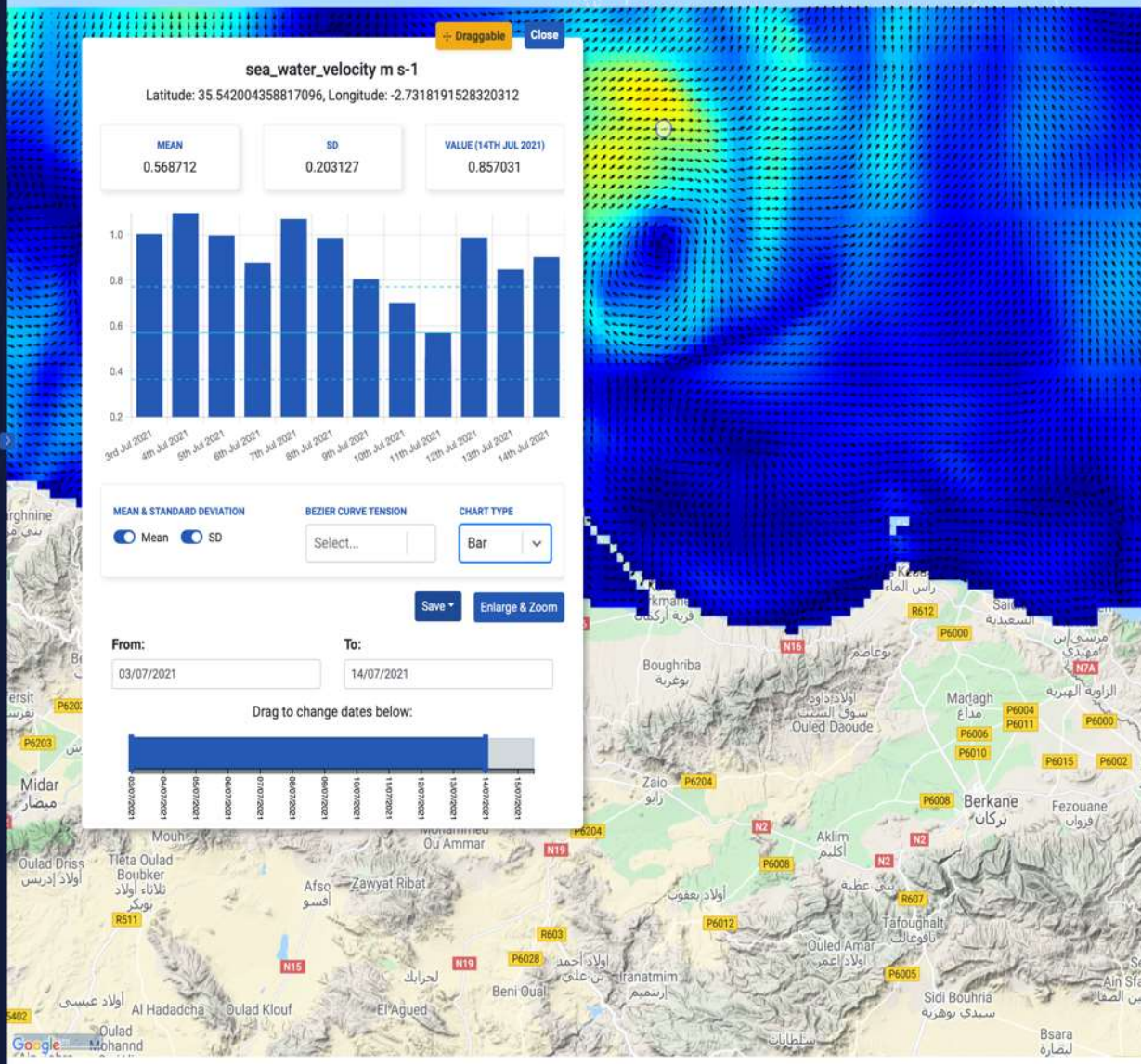Select map data layers to view from the catalogue. Drag and drop to re-order layers displayed on the map.

Unselect all

⊕ **ODYSSEA Morocco - CLS Data Store viewing service**

⊕ ☑ 1 - eastward sea water velocity
  - boxfill/rainbow ▼

⊕ ☐ 2 - northward sea water velocity
  - --Please select style-- ▼

⊕ ☐ 3 - sea surface height
  - --Please select style-- ▼

⊕ ☐ 4 - Automatically generated vector field, composed of the fields eastward_sea_water_velocity and northward_sea_water_velocity
  - --Please select style-- ▼

Stations & Legends

Select to view time series data from the catalogue or the map areas. You can choose to turn off legends

| 14/07/2021 | 07:00:00.0002 ▼ | Yesterday | Today | Tomorrow |

Service Status   Privacy Policy   ● Cookie Settings

Products ⌄

⬤ Eutrophication

⏱ Time Series Data ⌄

⬤ Tide gauges

≋ Catalogue ⌄

Unselect Layers

Parameters ›

Static Data ›

Observatories ⌄

ODYSSEA Morocco ⌄

⬤ ODYSSEA MOROCCO Flow

⬤ ODYSSEA MOROCCO Waves

⬤ ODYSSEA MOROCCO Weather

⬤ ODYSSEA MOROCCO Water properties

ODYSSEA Israel ›

ODYSSEA Algeria ›

ODYSSEA Turkey ›

Derived products ⌄

⬤ ODYSSEA – Eutrophication indices

⬤ ODYSSEA - Wave Power

📷

+ Draggable   Close

sea_water_velocity m s-1
Latitude: 35.542004358817096, Longitude: -2.7318191528320312

MEAN	SD	VALUE (14TH JUL 2021)
0.568712	0.203127	0.857031

MEAN & STANDARD DEVIATION
⬤ Mean   ⬤ SD

BEZIER CURVE TENSION
Select...

CHART TYPE
Bar ⌄

Save ▾   Enlarge & Zoom

From:
03/07/2021

To:
14/07/2021

Drag to change dates below:

+ ODYSSEA Moroc... + Draggable ...ore viewing service

+ ☐ 1 - eastward sea water velocity
--Please select style-- ▼

+ ☐ 2 - northward sea water velocity
--Please select style-- ▼

+ ☐ 3 - sea surface height
--Please select style-- ▼

+ ☑ 4 - Automatically-generated vector field, composed of the fields eastward_sea_water_velocity and northward_sea_water_velocity
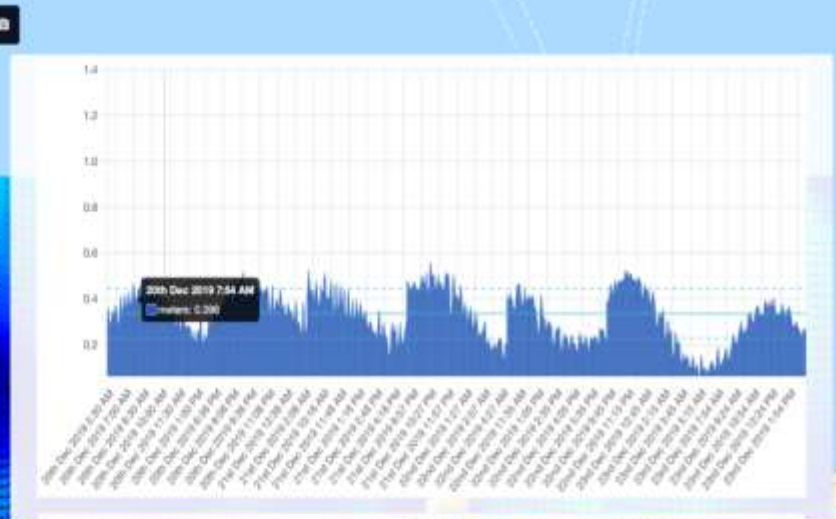vector/rainbow ▼

Stations & Legends
Select to view time series data from the catalogue or the map icons. You can choose to turn off legends.

☐ View location of in situ monitoring stations
☑ Uncheck to hide legends

Base Layer

14/07/2021   07:00:00.000Z   Yesterday   Today   Tomorrow

Products ˅

🌊 Eutrophication

⏱ Time Series Data ˅

⬤ Tide gauges

☰ Catalogue ˅

Unselect Layers

Parameters ›

Static Data ›

Observatories ˅

ODYSSEA Morocco ˅

⬤ ODYSSEA MOROCCO Flow
⬇ AI

⬤ ODYSSEA MOROCCO Waves
⬇ AI

⬤ ODYSSEA MOROCCO Weather
⬇ AI

⬤ ODYSSEA MOROCCO Water properties
⬇ AI

ODYSSEA Israel ›

ODYSSEA Algeria ›

ODYSSEA Turkey ›

Derived products ˅

⬤ ODYSSEA – Eutrophication indices
⬇ AI

⬤ ODYSSEA – Wave Power

+ Draggable   Close

+ ODYSSEA Morocco   + Draggable   ...re viewing service

+ ☐ 1 - eastward sea water velocity
--Please select style-- ↕

+ ☐ 2 - northward sea water velocity
--Please select style-- ↕

+ ☐ 3 - sea surface height
--Please select style-- ↕

+ ☑ 4 - Automatically-generated vector field, composed of the fields eastward_sea_water_velocity and northward_sea_water_velocity
vector/rainbow ↕

Stations & Legends

Select to view time series data from the catalogue or the map icons. You can choose to turn off legends.

☑ View location of in situ monitoring stations

☑ Uncheck to hide legends

Base Layer

+ Draggable   Close

ID: procedure/SEADATANET/Mediterain_Observatory_00085_P90
Procedure:: procedure/SEADATANET/Mediterain_Observatory_00085_P90
Longitude:: -2.9290 **Latitude:** 35.2910
Properties:
• observableProperty/SDN.P01::ASLVZZ01

View Time Series Data   View Sensor Information

ID: procedure/SEADATANET/Mediterain_Observatory_00026_P90
Procedure:: procedure/SEADATANET/Mediterain_Observatory_00026_P90
Longitude:: -2.9290 **Latitude:** 35.2910
Properties:
• observableProperty/SDN.P01::ASLVZZ01

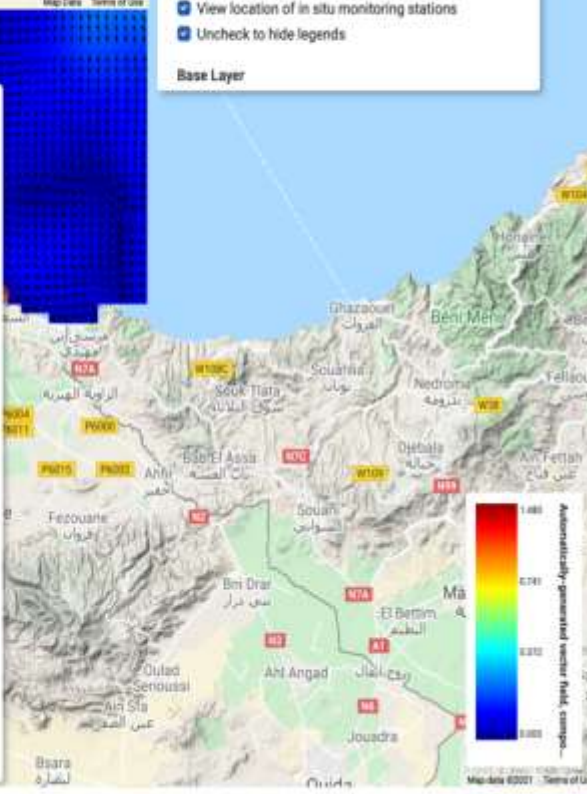View Time Series Data   View Sensor Information

ID: procedure/SEADATANET/Mediterain_Observatory_1045350_P90
Procedure:: procedure/SEADATANET/Mediterain_Observatory_1045350_P90
Longitude:: -2.9290 **Latitude:** 35.2910
Properties:
• observableProperty/SDN.P01::ASLVZZ01

View Time Series Data   View Sensor Information

ID: procedure/SEADATANET/Mediterain_Observatory_00191_P90
Procedure:: procedure/SEADATANET/Mediterain_Observatory_00191_P90
Longitude:: -2.9290 **Latitude:** 35.2910
Properties:
• observableProperty/SDN.P01::ASLVZZ01

View Time Series Data   View Sensor Information

20th Dec 2019 7:54 AM
meters: 0.200

1.4
1.2
1.0
0.8
0.6
0.4
0.2

Portugal   Spain   Andorra   Barcelona
Lisbon   Madrid   Valencia
Seville   Granada   Algiers
Gibraltar
Rabat   Morocco   Algeria
Casablanca
Marrakesh

Google   Map Data   Terms of Use
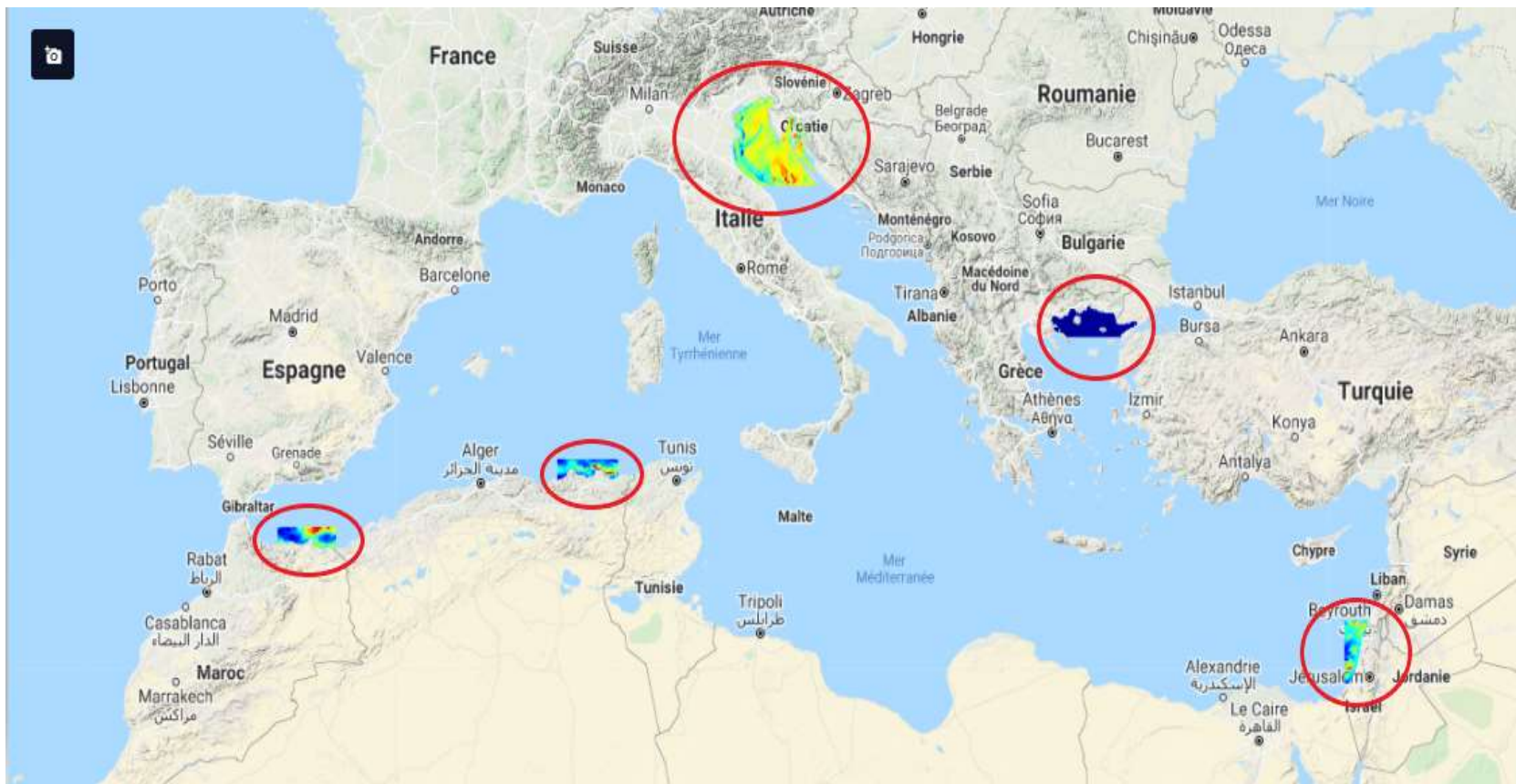
ODYSSEA Observatories

Models from 5 observatories are automatically integrated every day.
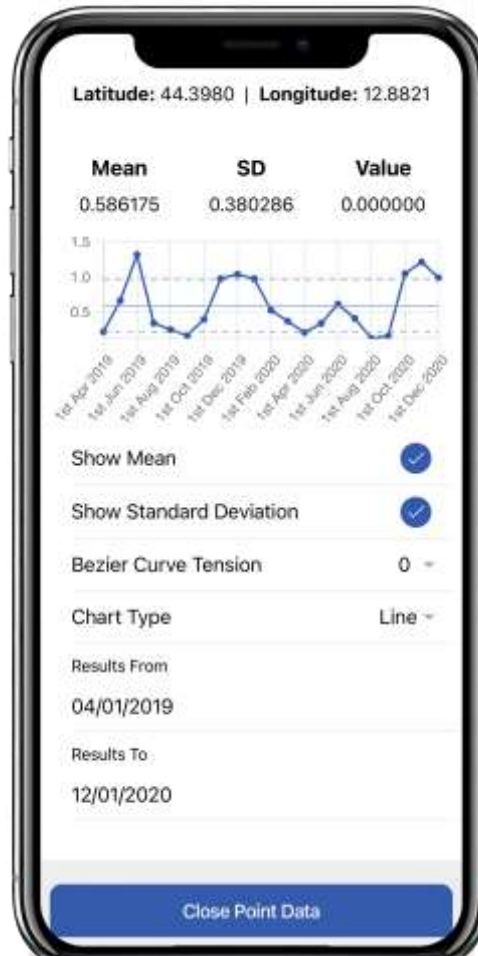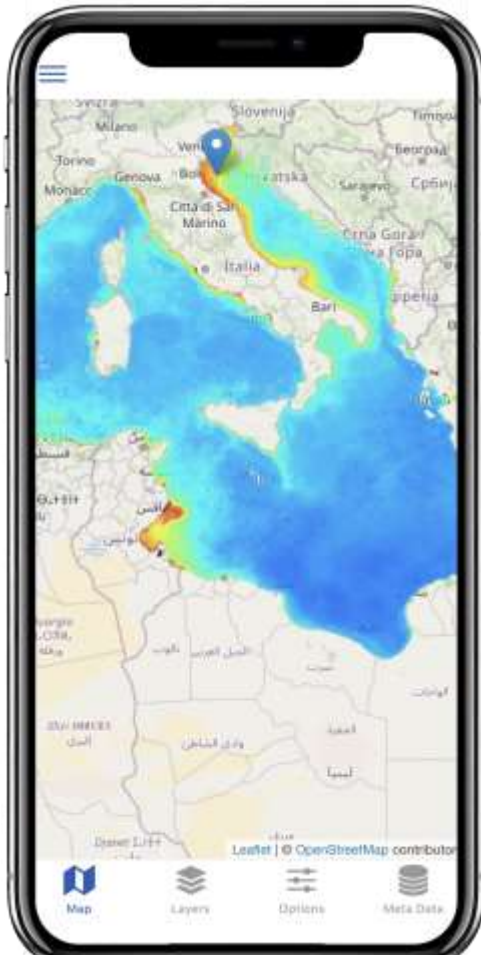
Marinomica Mobile
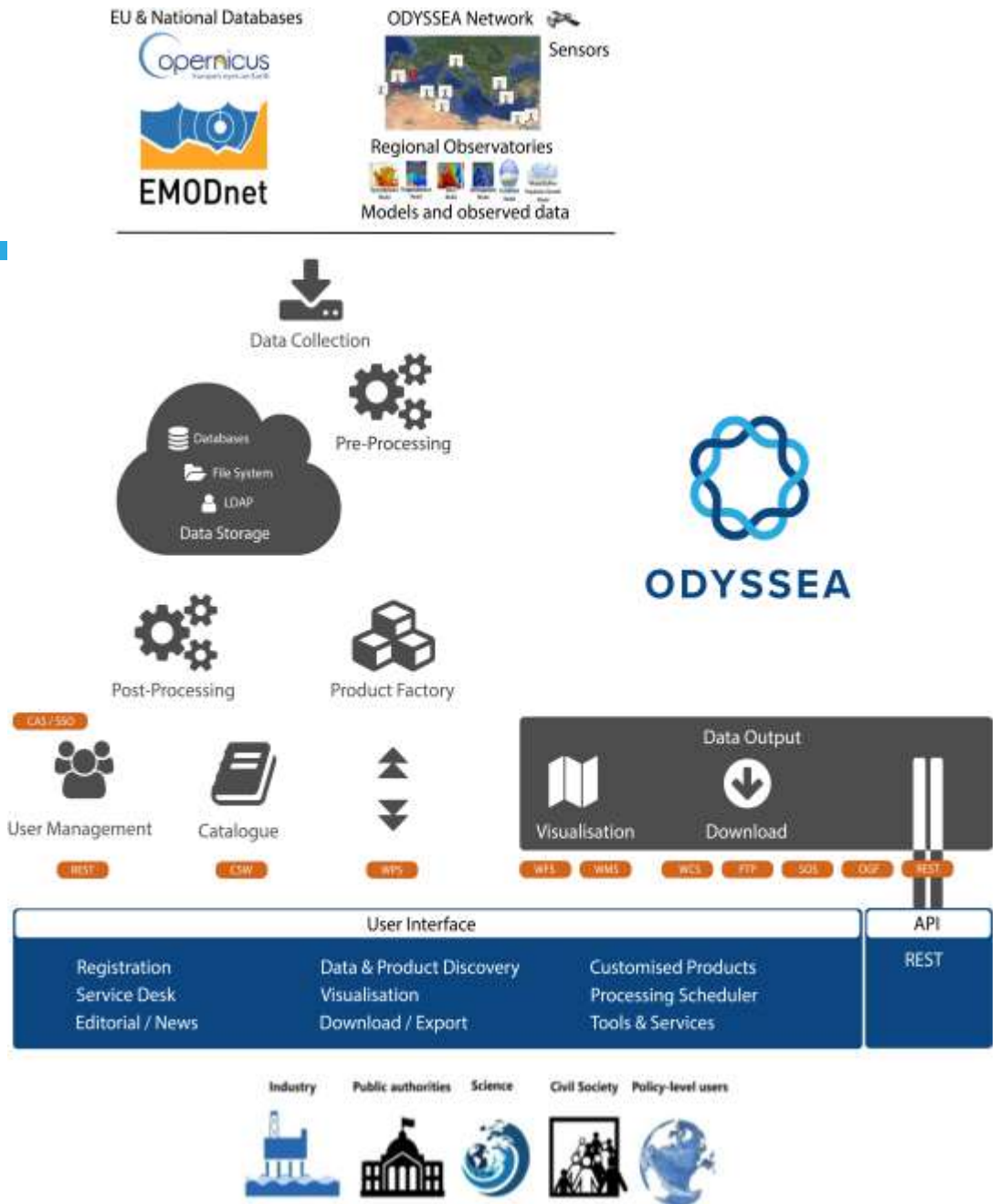

odysseaplatform.eu |@odysseaplatform

Architecture

The platform is compliant with OGC protocols

SOS
CSW
WCS
WMS
WPS

Marinomica also feeds back data and products via an API.

Collaborative development approach

ODYSSEA

| Catalogue | Pre-processing InSitu Data | Pre-processing Gridded Data | User management |

Post-processing
(Models, Algorithms autonomous without users interaction)

In-Situ dissemination

Gridded data dissemination

Product Factory
(Algorithms launch on the fly by users with their parameters)

TRIX **…** **…**

| SOS | FTP | WCS | WMS | WPS | REST |

Front End And App

| CLS | EDISOFT | BLUELOBSTER | GTD | HIDROMOD |
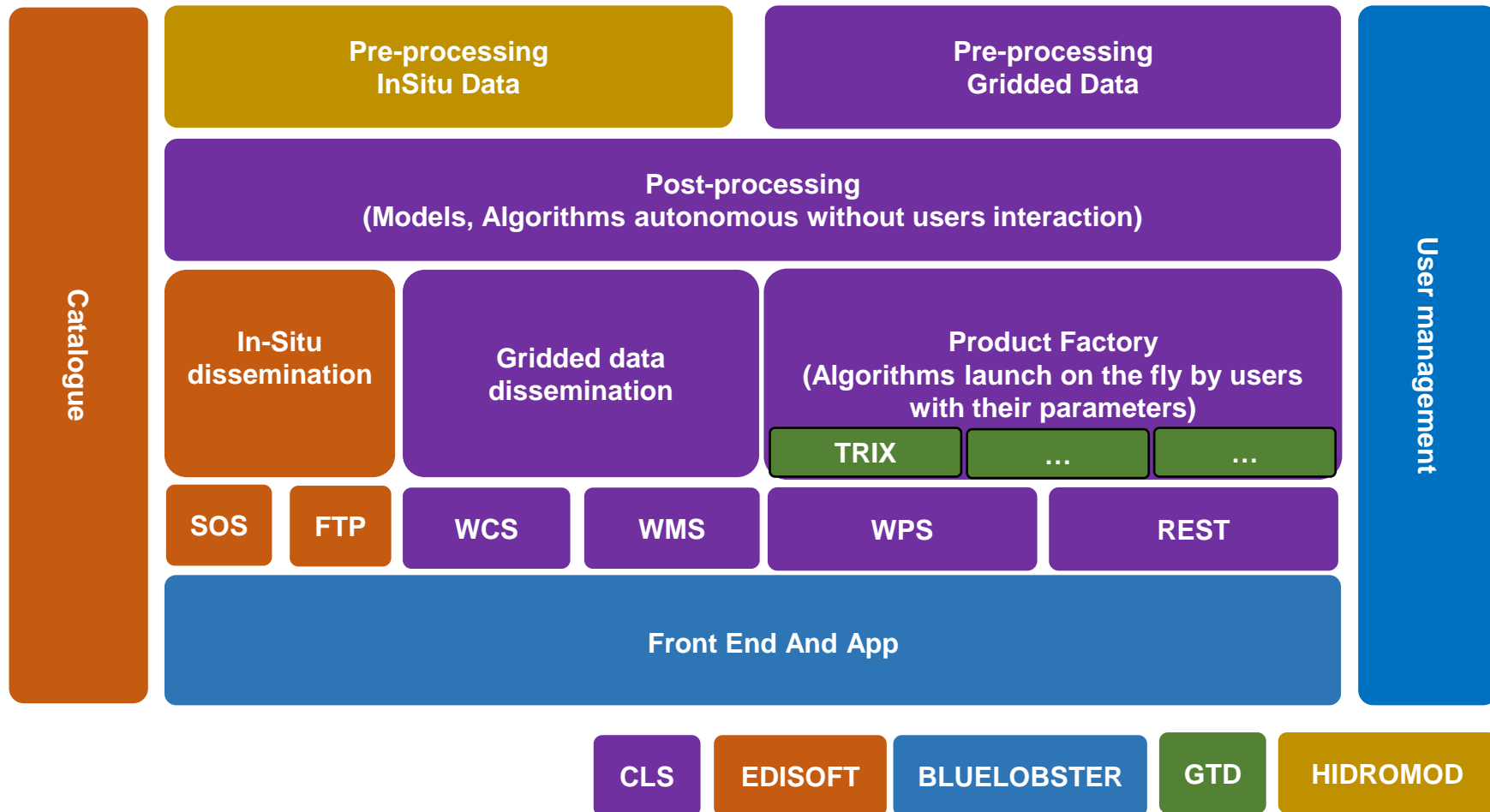
Where are we now

- Live at **marinomica.com**

- Receiving feedback

- Continuous development for both desktop and mobile.

- New data – more citizen science data.

- Business establishing to take forward

New features in next evolution (in addition to fixes!)

ODYSSEA

Enhanced dashboard functionality

- New visualisations

- Improved performance and user experience – simplify, simplify, simplify!

- Simplified visualisations for specific user types

- Pre-configured dashboards for specific fields of interest (Eutrofication, Wave Power, Jellyfish, Marine litter, Climate etc.)

- Sharing dashboards (inside and outside of the application)

New user signup and controls

- Profile configuration: Location, areas of interest. Dashboards automatically customised.

Alerts

- Set alert conditions: "Wave height > x" for example

- Customisable – WHERE x > y AND a < b

- Alerts sent to multiple users

- Via website, email, SMS, mobile app

Advanced processing: The Product Factory

- Choose processing and algorithms to run

- Processes triggered by alerts

New projects

H2020 EcoScope - Started in September 2021

Ecosystem based approach to the management of

fisheries.

H2020 Iliad - Digital Twin(s) - Starting in February 2022

Commercialisation

In discussions…

Marinomica

www.marinomica.com
or
Search for '**Marinomica**' on the Google Play Store / Apple App Store

Sorry, not available on Blackberry!

Creating products and knowledge for the Mediterranean

THANK-YOU

Simon Keeble

Blue Lobster IT Limited

simon@bluelobster.co.uk